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Virginia Wildlife

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources and to the Betterment of Outdoor Recreation in Virginia

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COVER: The comings and the goings of wild geese have a special fascination for most of us, and few creatures are more symbolic of that which remains forever wild and unfettered by the bonds of civilization. Canada geese, subject of this month's cover painting by Duane Raver, are the best known and most important type within the Atlantic flyway.

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PUBLICATION OFFICE: Commission of Game and Inland Fisheries, 7 N. Second St., Richmond, Virginia

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ANN E. PILCHER . . . . . *Editorial Assistant*
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EDITORIAL

Why Shouldn't We?

IN a recent article ("Let's Spoil the Wilderness," *The Saturday Evening Post*, November 6) author Robert Wernick asks the question, which to him seems eminently reasonable: "*Why shouldn't we spoil the wilderness?*"

Well, why shouldn't we? The question does deserve an answer.

Mr. Wernick, for the sake of argument, lays a cunningly devised trap:

> **"Have these people ever stopped to think what the wilderness is?" he asks. "It is precisely what man has been fighting against since he began his painful, awkward climb to civilization. It is the dark, the formless, the terrible, the old chaos which our fathers pushed back, which surrounds us yet, which will engulf us in the end."**

Does this not play upon the same ancient and superstitious fear of the natural world that once peopled the earth, its waters and the sky with demons and a host of capricious Gods, before the revelations of the great monotheistic religions and of natural science brought into the world a more enlightened and sublime view of the creation and man's estate therein?

The natural world cannot be antagonistic to that which it has brought forth. It is stern, and sometimes hostile to what in our ignorance we may conceive to be our own interests and welfare, but in its very sternness it is altogether good and wholesome. It would have been a poor human race indeed if all had been painless and easy, and no wilderness had challenged. Most of our difficulties with the earth have stemmed from our own ill-advised efforts to do that which should have been left undone.

Mr. Wernick admits to a partial answer to his own question:

> **"There is actually one legitimate reason for saving the wilderness, and that is that some people enjoy it and feel thrilled and ennobled by it. They have a taste for desolate landscapes and lonely nights under the stars. There is nothing wrong with such a taste. Everyone, everywhere, in whatever culture or society, needs something to help transcend the daily round of work and grief and boredom. Some find such transcendence by driving at illegal speeds on freeways, some by chomping on sacred mushrooms. An exultant thrashing through the wilderness may be a rich human experience—not quite so rich perhaps as reading the book of Isaiah or visiting the Parthenon, but certainly more varied, and more deeply satisfying than sniffing glue."**

It is true enough that one good reason for having a high regard for our remaining natural areas is that some people enjoy them; and if, as Mr. Wernick says, the wilderness taste is a minority one, this situation will not be remedied by a cynical disregard of minority interests. But more fundamentally, we are all products of a long and close association with the natural world, and there is no proof that the race would have fared much better had it somehow been able to inherit in its infancy a whole man-made world; nor is there assurance that in the long run the works of man will be more kindly and hospitable to the race than the wilderness which they displace.

Why shouldn't we spoil the wilderness? Because we can enjoy it, yes. But also because it remains a great teacher, and we still have much to learn; and because we have a reverent regard for it, as a part of the divine creation of which we also are a part.—J.F.Mc.

LETTERS

Give The Potomac a Chance

I AM young, and have traveled very little. But in Virginia I have traveled up and down the Potomac River, along the paths by foot or on the water by small canoe. And although I have little to compare it with, I am certain that there is not a more beautiful, peaceful, wild river in all this country. There are spots on The River, not one mile from the City of Washington, that are just as wild looking as they were a thousand years ago. There are spots on The River where you can float silently down toward The City, and look upon hills which hold you in and imagine the most wild things. It's as if time had stayed old here, in the home town of the nation. You can get on The River and can leave everything behind, cares and all, and for a time see the great things nature has done.

I floated down this River toward The City when the trees all around were bright with fall, and for a brief time, behind and in front, all that could be seen was The River and the trees and the pale blue sky. And it is times like these that a person's self can go back through time and see as many things as the mind will allow. It is times like these that I am gladdened that The River has not changed. And I am sure the feeling I get is the same that all people get. The River does magical things to people. If you meet someone out on the water, he'll nearly always nod or wave his hand. People, and I too, will be different walking down city streets. We hardly acknowledge a stranger on the sidewalk. But on The River everyone knows everyone else. It's as if The River has done its work on each man. Every man is every man's friend. It must go back, I'm sure, to past days when travelers felt compelled to be cheerful to all they met. I'm sure that this is true.

Of course it would not be the same, quite, if tall buildings lined the shores on all sides, and if the only wild thing were the sky. But on The River, the trees and the air and the silence do strange things. And if you have never experienced what I am talking about, then take a trip down the magic River. If you let yourself, I know you too can see what I mean. And I know that you'll agree that The Potomac, whatever shortcomings you may think it has, is surely one of the most beautiful, natural rivers in this whole country. The hills that line the western shore are the hills of Virginia. The hills and trees are vast and seemingly unending, and they can, without a doubt, take the soul away and return it with a new sense of life. And if you want to feel this renewal, and you can, then just take a ride down the big River, toward The City. The magic is there and you can't miss it if you'll give The River a chance.

John Cary Stone
Falls Church

Feathered Romeos and Juliets

By JIM WOOD
Lenoir, North Carolina

"Dark flying runes against the western glow
It tells the sweep and loneliness of things."

THE wild goose has forever been in the hearts of men and when Frederick Peterson penned these words years ago to the fast traveling flocks that meant so much to him, he said what many felt for the wild geese but just couldn't get into the words that Peterson managed with such simple beauty. The wild goose has been immortalized in song, and story, and legend. He's worth immortalizing.

John Audubon stood in awe of these magnificent birds. It is not hard to tell that from his writings, and he was a man for whom it was not uncommon to shoot a hundred birds of some sort a day, and who knew many of them as well as any man. Audubon kept pinioned geese about his place to bug his vegetable patch. The courting of these feathered Romeos and Juliets in the wild fascinated him much, and he wrote at length of these shenanigans: "Although the gander does not strut before his beloved with the pomposity of the turkey, or the grace of a dove, his ways are quite as agreeable to the female of his choice."

Kenneth Roberts, whose magic pen carried millions of Americans on his famous *Northwest Passage*, liked to take a brace or two of black duck from Maine's frigid bays but wasn't too jubilant over shooting geese. The habit of the goose's family following into the terrible wrath of shotgun fire after one was down got him more than anything, and this set not too well in Roberts' craw. Had he his way there would be no season on geese. These birds, carrying on Nature's oldest love affair, fascinated men before Audubon's time, and since. Men yet stand in awe and I guess they always will. They can't help themselves mostly, and I among them. That's the way men are about geese, enthused, and it matters little whether they like him and hunt him, or just like him. Once a man watches these handsome fellows much, it sort of spoils him for a time for his other friends of the waters and fields. Among waterfowl is about the only place you can watch big flocks anymore. I stand mouth agape, I know, every time I see these great travelers, but I've seen others at the same thing so I guess it's hard to control. It's hard to say why men act this way. There is admiration, I know. Respect for the birds' ways and manners and courage and fidelity. What more can a man expect in a bird?

Last fall when the woodlands were in all their splendor, autumn splendor that folks drive miles to see along the mountain ridges, I was down along the river bottoms looking for mourning doves. The oaks were flaming and about all the trees were afire from fall's torch, the corn curling and dying, throwing long shadows in the late sun. The doves had found a field to feed in that I didn't know of, I guess, and I sat down to see if they might start moving. A band of crows across the river were raising an awful ruckus over something, so raucous I wasn't sure I heard it at first through the racket, but it came again and I was certain. The lilting talk of the wild Canada goose, elliptical singsong, goose talk that has raised men's heads since time began. I stood, watching for them, and it didn't take long before they hove into view following the course of the river cutting through the clay country that keeps its waters stained. They

The fidelity of the goose to its mate and devotion to its offspring is uncommon in the animal world. Family groups remain together until it is time for the old goose and gander to busy themselves with another brood.

were flying high and fast and knew where they were going. The big, slow-moving wings seemed to belie their speed, and they were soon gone in the haze of distance. Where were they going? Who knows, and surely not I, standing in the grasses along the river. But they knew. Maybe to a corn field they liked further along the river, or farther on to the refuge.

I long since stopped marveling at the habits of the Canada goose. Since I got to know him a little, I expect somehow a bird of his intelligence to do the things he manages, and to handle most any situation that enters his life. Years ago in what the folks call the Jersey country of Carolina, a man named Will Smith was an incredible sight as he drove through the country, a great cloud of dust following his automobile. Not that Smith was other than an ordinary man, but what caused him to be different from others who traveled the rough roads was the big Canada goose that traveled with him. The goose flew just over Will's car as it sped along the road. When he stopped, the big goose settled down to await the return home. People called him "Goose Will" but didn't give it too much thought otherwise, they were so accustomed to it. Some had their dogs, some cats, some their coons, and, well, Will had his goose. The old goose was a traitor to his own kind too, being a pretty good Judas goose for Mr. Smith and luring the wild ones into gun range. Some say the live decoys of years gone enjoyed this chore of luring their kin to death, but I can't much believe this. They were just following a jubilant instinct that had been theirs forever, in greeting their own kind.

The fidelity of the goose is what astounds most folks most. I think. Devotion to mate and to family has many nonadherents among the animal species, most particularly the humans. Those that net geese for different reasons, banding mostly, are careful to release all those under the throes of the net at once so that family groups won't be broken up. It's not uncommon to get all of them in one trap—father, mother, and offspring. Most of the feathered world are not noted for being overly devoted to any one mate, even among the family Anatidae. A drake duck wouldn't think of helping with the chores of raising a family; and sticking to one mate for life?—a preposterous proposition. But it is this trait that may explain somewhat the reason that ducks have their ups and downs, while geese hold their own a little better. It's a warming thing to see the old gander helping the goose along with the young ones, and any predator with ideas of fresh goose is apt to be soundly thrashed with a horny bill for his bother. If the predator is human, it makes not much difference to the gander. The mother duck must go it alone, and this is a tough situation for any animal or fowl.

About every time our trails cross, cousin John and I talk of birds and always get around to geese. Last time I saw him we talked of the mating for life of the geese, and I expressed wonder that a goose could keep track of his mate among the thousands that look no different. I have trouble telling twins apart. John grinned. "It would be no trouble if you were a goose," he said, and I guess it wouldn't. But amazingly the gander and the goose not only know each other, but all the young ones as they grow up. A wonder in a goose settlement is the babysitting chores. A half dozen, maybe, of the old birds will take their turns watching all the young ones, while the others wander off to stretch their wings and get a quiet moment. If trouble should show, however, the young head for Momma in an instant, and she for them.

Commission photo by Harrison

Flights of the great gray birds are as much a seasonal tradition, both of spring and fall, as the changing color of the woodlands; and human ears and eyes await the sound and sight of their coming with equal eagerness at both ends of their flyways.

The gander picks a goose and that's it, of course. His devotion to her is for the rest of her life and should one or the other die, they might pick another. But in the spring the unmated gander's thoughts turn to love (as they do in most of the land), and even goose love is not a tender thing in its beginnings. In fact, the fray is apt to get quite heated when the gander is searching out the feelings of the goose on which he has his love-troubled eyes, for the other ganders have much the same intentions. The results depend on which is the best goose partly, and which of these is the most honorable in her eyes. She, not a part of this rowdiness, quietly scratches up some dried stuff for the nest. But when all is settled, one of Nature's great love affairs begins and doesn't quickly end. The gander will be there when the eggs are laid, and when the little ones come wet from the shell and soon turn into fuzzy-cheeked balls. He'll be at her side in the long nights and days as they leave the North's coming harshness to find warmth and food for a big family. When they go down to search out a place to rest they will be together in the withering fire of the hunter's gun they sometimes meet. And on they'll come, to the south, following an urge that they don't understand, but can't disobey.

They'll come back to the country they love so well, following the lines of the sea and the courses of the rivers; and when they do I'll be waiting for them, for their return brings new life to a land worn out by summer. I'll watch them when I can as I've always done, and I'll go down to Ansonville a couple of times and walk the shores of Lockhart Gaddy's Goose Refuge once more among the thousands of wild geese whose intelligent eyes trust me, yet not too much. Maybe Mrs. Gaddy will send the man up to feed them on the hill, sending them careening into the pond in a roar that deafens you as he drives out among them to push the corn from the pickup. And I'll walk up and among the pines to Lockhart Gaddy's grave and on its bare soil cover will be several geese, big black feet padding the soil yet harder. That's the way he wanted it. I know why.

RABBITS THAT RUN LIKE COONS

Photo by Leonard Lee Rue, III

By EWART A. AUTRY

IT had been a fruitless day of rabbit hunting among the high hills which rise above Whippoorwill Valley. My son, Lanny, and I, plus our small mixed-breed dogs, had only jumped one rabbit, which had immediately taken refuge in a deep hole under a rock without allowing us a single shot at him. Now the sun had gone and we were homeward bound, with our dogs trotting dejectedly behind us. As we passed a neighbor's house he hailed us.

"What have you been hunting?" he asked.

"Rabbits," I replied. "Rabbits back in the hills where there should have been dozens of them. Didn't find but one. Didn't get him."

"You've been to the wrong place," he said. "The rabbits have moved to the swamp among the coons and minks."

"A few swamp rabbits have always been there," I said "but I never knew the hill cottontail to move to the swampland."

"They're there now," he said. "I don't know why they moved. Maybe there's too much fox pressure in the hills, or maybe there's just more food in the swamp."

"Wish we'd gone there," I said.

He looked at our dogs. "You wouldn't have done anything with those dogs," he said.

"Why not?" I bristled. "They're pretty good rabbit dogs."

"They may be. But those rabbits run like coons," he emphasized. "They spend half their time splashing through the water. A dog has to know how to run them. Now I have a pack of beagles trained in that swamp. If you want to go tomorrow we'll take them, and I guarantee we'll find rabbits."

My son straightened and looked inquiringly at me. "Tomorrow it is," I said. "We'll be at your house by good daybreak."

"Bring your shotguns and be prepared to wade water and mud." he advised. "Those tangled thickets don't make for good rifle country, and you'll need some kind of boots to travel dry."

Slick Ormon had his beagles loaded when we arrived the next morning. On the ten minute drive to the edge of the swamp we discussed the possible reasons for the scarcity of hill rabbits. "I guess all things of the woods do a certain amount of moving," I remarked.

"Right," said Uncle Slick, "and it's usually either for eating, courting, or escaping enemies. It's not rabbit courting time, so I guess the hill rabbits either found too little of eating or too many enemies in their old territory. Could have been a combination of both."

We unloaded the eight beagles where a cornfield edged up to the swamp. A drainage ditch skirted the field and disappeared into the tangled depths of the swampland. A grizzled female trotted out to the ditch, sniffed a few times, then lifted her head in a long-drawn bawl.

"That's old Grandma," said Uncle Slick. "She's talking rabbit talk. That's the only kind she knows. You can bet your top shirt button that a rabbit went along there just a little before dawn."

The other dogs joined Grandma and began a merry wag-

(Above) Strung out in a line and in full cry the beagles follow "Grandma's" lead. (Below) Ned thinks something went right down the ditch.

A big swamp rabbit that ran like a coon, downed as he dodged among thickets and ditches.

Photos by L. M. Autrey

ging of tails as they, too, caught rabbit scent. A stout young male called Ned hopped into the ditch and began to give occasional mouth as he splashed away toward the swamp. "He thinks something went right down that ditch," I remarked.

"It was a rabbit," said Uncle Slick mildly. "I told you these rabbits traveled like coons. Old Ned's catching his scent where he touched driftwood or the weeds along the banks. A dog without experience wouldn't know how to trail that rabbit."

By the time the beagles were out of sight the trail had warmed until several of them were talking rabbit. "They'll jump him," said Uncle Slick, "but he won't come back here. He'll do his running in the swamp, so if we intend to get a shot at him we'd just as well get out into the thickets and scatter."

Although it was winter and most vegetation was dead, we found ourselves walking through waist-high swamp grass mingled with ferns, wild rose bushes, and a wide variety

(Continued on page 22)

Playboy of the forest

By KATHERINE W. MOSELEY
Arlington

A CERTAIN man went wild turkey hunting in the mountains of Virginia. His optimistic excitement was equalled only by his splendid hunting gear and three brand new turkey calls. From dawn to mid-afternoon he scraped, scratched or blew on his calls with no luck whatsoever. Disgusted, he hiked out of the mountains and met a grizzled mountaineer with a rifle over his shoulder.

"Turkey hunting?" asked our friend.

"Yep." answered the mountain man.

"Are there many around here?" our hunter wanted to know.

"Dunno," was the answer; "been turkey hunting for thirty-five years and ain't seen one yet."

We do not know of the last thirty-five years, but we have not seen one either on our wooded acres that lie above the horseshoe bend of the Hazel River in Culpeper county. However, we watch and listen. Under the impetus of enlightened game management, carefully controlled hunting seasons, and protected forest lands the wild turkey is making an impressive comeback.

Wild turkeys are deep woodland birds and wonderful game. From the days of the Indians they have been persistently hunted for food and sport. The cutting of the oak forests and the blighted American chestnut trees depleted their food supply and for a time the turkey was in danger of joining the passenger pigeons, the ivory-billed woodpeckers and other valuable members of the wilderness family now lost forever.

However, today's game biologists have scientifically conducted research on the wild turkey and have learned more of the requirements necessary for the productivity of the valuable birds. There is guarded new growth of oak, beech and other trees and shrubs that furnish mast. There has been successful and efficient trapping and transplanting of the birds into areas suited for them. The offspring of the relocated wild birds are now raising broods of their own.

Of all birds none is more eager to escape extinction than the wild turkey. Possessed with zest for living, enormous endurance, the keenest eyes and sharpest ears in the woods, and an educated wit for survival the turkeys should always be around given half a chance.

Consider Tom, the gobbler. Courageous. Regally robed. A rakehell at heart. The playboy of the forest. He can daily court as many hens as he is able to entice into his harem and be father to all of the eggs deposited in each hen's nest. He is by far the handsomest game bird in North America, or the world. Dressed in coppery bronze feathers, margined with velvety black, each so well defined that he appears clad in feathered armor. Where the two colors meet the bronze appears greenish and purplish, almost iridescent. The naked skin of the head and neck is different shades of red.

Take account of his courtship display which is vain and pompous, boastful and slightly ridiculous. The object of the display and gobbling is, of course, to attract the females. Gobblers like to strut most on bright, warm spring mornings as cold, rainy weather greatly dampens their ardor. A cynic has suggested that the wild turkey gobblers on promenade may pay more attention to each other than to the hens; that the display may be an aggressive act aimed primarily at other males. Be that as it may, the highly polygamous Toms are gallant lovers and will fight to the death to prove it.

There has been so much folklore written and told concerning the wild turkey's courtship display that it is hard to separate fact from fiction. It is known that the turkey Tom will compete fiercely in the spring for a choice breeding area and to establish unchallenged ownership of the hens he collects as wives. Eventually the strongest and most dominant male wins the favored strutting grounds. The others go elsewhere to establish their own arenas and lure the local hens. The triumphant turkey Tom struts and gobbles until a hen is ready to mate. Each hen comes to her chosen cock during the laying season. The cock gobbles and watches until he hears her responsive yelp and then awaits her approach. Turkey hens neither gobble nor strut; they simply voice approval of the whole idea.

Despite the behavior of a hussy during courtship (which may be in deference to male vanity), the turkey hen is a demure and devoted wife and mother. She is smaller than

the male and her plumage much duller with no metallic glitter. The dull greenish lights on her back blend with foliage patterns which makes her easily camouflaged while on her nest. Her head and neck are smooth and pinkish.

Mother Hen chooses her nest site on the ground carefully. The nest is placed in a slight earth hollow in tangled thickets or tall dense weeds. There may be from eight to fifteen pinkish-buff colored eggs. The incubation period is about twenty-eight days. After the brood is hatched the mother bird leads the young from the nest. In a couple of weeks the young birds are able to fly and roost at night on a low, large branch of a tree. The brood remains in the mother's care as Tom assumes no nesting or child-raising responsibilities. Rainy weather presents more danger to the young birds than do their natural enemies.

A friend who is a turkey hunter told me that if a fox finds a turkey nest, it leaves it alone until exactly three days before hatching time; then it will clean out the nest. He didn't say how the fox figures the exact timing! Along with this fox story belongs the myth that a fox will carefully guard the turkey's nest for weeks to protect it from skunks, weasels, bobcats, coons and possums until the fox is ready to devour it. Sadly, the truth is that the fox will destroy the eggs whenever and wherever he finds them.

After the spring and summer season, when the gobblers have no need to establish unchallenged kingdoms and there is no competition for choice breeding areas, the turkeys travel in small groups made up, perhaps, of an old gobbler and a few young males. Some ornithologists write that in the winter the birds travel in sociable, chummy groups, the males together and the females with their young together. Others say that gobblers over a year old are not at all gregarious and much prefer to go alone.

Wild turkeys photographed last October on the Gathright Wildlife Management Area which has provided a steady source of wild trapped brood stock for relocation to suitable but unstocked range in Southwest Virginia.

Turkeys walk or run but they can be strong fliers if necessary. We had an exciting adventure on a country road in Fauquier county when we met what we thought were two farmyard turkeys. It was in the fall and they were casually eating honeysuckle berries along the side of the road. As we approached slowly in the car, they strolled most deliberately across the road. Then they took to their legs in a run and then to their wings and were off with a zoom that no domesticated bird could ever achieve. Wild turkeys like to roost on broad limbs over streams or in deep wooded hollows. In the spring the turkey Tom always gobbles before he leaves the night's roost and as he flies to higher ground he gobbles as he goes.

Their favorite home is in hardwood forests. While it is the oaks that are the main requirements of a good turkey stand, the beech, chinquapin and black gum are also attractive to them. Dogwood and holly berries, wild grapes, huckleberries and blackberries furnish part of their food, but there must be sufficient undergrowth for protection while feeding. Grasshoppers, crickets, and other assorted insects are also included in their diet and are especially valuable for the growing young.

Hunters search for the many scratch marks on the forest floor left by the turkey's grubbing bills and stout scratching toes. Since turkeys are creatures of habit, evidence of their feeding area is a clue to their residence, as they return to the same spots often. Even so the range may be very large as the flock swings out in a wide circle to hunt for food. Turkeys do not migrate but they wander extensively in fall and winter.

When our nation was very young the Second Continental Congress appointed a distinguished committee to bring in a device for a seal for the United States of America. Benjamin Franklin, who was on the committee, was extremely anxious that the wild turkey be chosen for the national emblem. However, after long and bitter bickering it was the bald eagle that was finally selected as the bird to go on the Great Seal. Benjamin Franklin was very disappointed as he regarded the bald eagle a bird of bad character, "a thief and a rank coward."

Then along came John James Audubon, the great painter and ornithologist, who gave the wild turkey first place in his heart and made it famous. Audubon's paintings and written accounts of this splendid American bird are invaluable. From Audubon's time until today, everyone who loves wild birds considers the wild turkey the most beautiful game bird man has ever known, the noblest expression of the American wilderness. Without a doubt it is also the most interesting, the wariest and wisest.

WINTER TROUT

By OZZIE WORLEY
Roanoke

IF a fellow had been overheard to say three or four years ago that he was headed trout fishing in Virginia *IN JANUARY* his listener might have: (1) tipped off the game warden, (2) labeled the guy some kind of nut. In the first place, the trout season is over December 31 in the Old Dominion's creeks and rivers. Furthermore, even if this were not true, few of the hatchery-reared fish would be left in the streams.

Despite all of this, John Fitzgerald, who is a Roanoke fishing friend of mine, and I started trout fishing in early January of this year, and we have caught strings of brown and rainbow trout. We did it perfectly legal, too. We landed the trout in Philpott Reservoir, a 3,000-acre lake carved out on the Smith River in Franklin, Henry and Patrick Counties by the Army Engineers. And in this lake, among several others, the Commission of Game and Inland Fisheries allows year-around fishing for trout.

Philpott is an impoundment of many coves, with a shoreline of wooded steep slopes and cliffs which bow to the water's edge. It gained its fishing fame not from trout, but from the excellent largemouth and smallmouth bass it offers. What is probably Virginia's record largemouth, a 15-pound, 3-ounce monster, was reeled from Philpott in April of 1961 by a Roanoke man, Clarence T. (Duke) Maberry, Jr.

The lake has a double feature now—bass and trout. Rainbow and brown trout in a Virginia lake? Catching them in the dead of winter?

For the answers, you have to go back a few years, to the fall of 1960 to be exact, when there were several thousand surplus young trout in the state hatchery ponds at Marion —and nobody knew what to do with them.

Jack Hoffman, of Roanoke, supervising biologist for the fish division of the Game Commission, had a brainstorm on what to do with the trout. Why not stock them in some of the colder southwest Virginia lakes to see if they would live and put on weight? Hoffman convinced his superiors that it was worth a gamble.

Carvins Cove, a municipally-owned lake near Roanoke, and Philpott Reservoir were selected as the guinea pigs for the experiment.

The first stockings were made in November of 1960 when approximately 15,000 rainbow trout, from four to five inches long, and about 50,000 brook trout, three inches long, were dumped into Philpott. A smaller number were stocked in Carvins Cove. To assure a ready food supply for them, threadfin shad were hauled from Tennessee Valley Authority (TVA) impoundments and freed in the two lakes. These small forage fish, which do not attain a length of more than four or five inches even in adulthood, are the secret to the success of the trout. Wherever the shad have flourished, so have the trout.

In the fall of 1961, fish biologist Hoffman and his aides were all set to make their second stocking of juvenile trout in Philpott and the Cove. However, the fish were not available from the hatchery until January 1962, when 10,000 rainbows from two to three inches long went into Philpott. "We almost missed '61," points out Hoffman. Fifteen thousand more four-five inch rainbows were stocked in October of 1962, meaning that altogether 25,000 young trout were stocked in that year.

Stockings since then have been carried out on an annual basis each fall, with 14,000 rainbows, 14,000 browns and 10,500 lake trout stocked in November of 1963 and 28,000 rainbows distributed in November of 1964. Although all of these went into Philpott, somewhat smaller stockings of rainbows and browns were made during the same years at Carvins Cove. Subsequently, South Holston Reservoir and Claytor Lake were added to the impoundments stocked with young trout. Those in Holston came from Tennessee game department supplies. However, the fish have not fared as well in these two lakes as in Philpott and the Cove. And oddly enough, the rainbow and brown trout apparently have outdistanced the other species. Few of the 50,000 brookies put into Philpott that first November in 1960 were ever heard of again, and there has been no positive proof that the lake trout, stocked in 1963, caught hold.

Of all the impoundments where trout were introduced, Philpott has turned out the finest specimens. Here the author proudly displays a 16-inch brown.

Of all the impoundments where trout were introduced, Philpott has turned out the finest specimens. Some have weighed six or seven pounds. Two years ago anglers—fishing deep with nightcrawlers or other live bait—struck it rich in Philpott, and to a lesser degree in Carvins Cove. Then, rather abruptly, the catches fell off to near zero. The reason? No one really knows, but the favorite theory is the low water, brought on by a two-year drought, affected the trout.

This winter, however, the trout have done an about-face. At Carvins Cove, "still" fishermen have scored with nightcrawlers. The hot spot has been from the docking area to the dam. At Philpott Reservoir, anglers have found medium-depth lures to be the best producers. The sudden hitting urge of the trout forced scores of men to desert their cozy chairs and TV at home for the lakes, where temperatures nudged the freezing mark and the wind made it feel twice as cold. A number of fishermen found the trout on the prowl near the top of the water."It's the spawning urge," said biologist Hoffman. "I've seen them going along in twos and threes, apparently looking for a place to spawn."

The ideal result would be for the trout to spawn and perpetuate their kind. And, although chances of this are slim, indeed, the Game Commission specialists such as Jack Hoffman are not giving up trying to help out the trout. The latest Philpott stocking last November, in fact, was done at the mouths of five small tributaries. It is hoped, of course, that some of the trout will spawn in the streams. However, it is well-known that trout are fussy about their love-making and creeks must have temperatures, beds and other factors "just right" before natural reproduction can be brought off. Biologist Hoffman is frank to say that he knows of no streams meeting all of the required standards, but he adds that spawning success is certainly not out of the question.

At any rate, the trout have been stirring this winter, and fishermen are hot after them. Unless you can stand freezing temperatures and are supercharged with patience, my advice is don't sign up with the winter trout fishermen. You

John Fitzgerald concentrates on trolling as he guides 12-foot aluminum boat through a Philpott cove. He got his limit on January 23, and one of them was a 19-inch rainbow.

may shiver and shake all day long and not get a single strike. Or, you may hit it lucky, as Fitzgerald, my angling partner, and I did.

Our first successful venture came on January 2, a day when the wind was whipping up waves on Philpott Reservoir. The mountains of Virginia are not the sunny south this time of the year. Fitzgerald and I both dressed heavy for the outing. I put on insulated longjohns, a wool shirt, a sweater, a jacket, an overcoat and hunting boots. And, at times, these were insufficient to ward off the cold. Furthermore, I found that fishing with your gloves on is sort of like eating with your gloves on.

After arriving at the lake, lifting Fitzgerald's 12-foot aluminum boat from the top of his station wagon and carrying the boat to the water, we sighted two other men putting in ahead of us. We fastened two minnow-like, medium diving lures onto our lines, trailed the two other men into the cove and began trolling.

"Nobody but fools and fishermen would be out here," Fitzgerald remarked to me as his breath curled into the air like smoke from a pipe. I was every bit as chilled as he, but my ambitions were high, since only a week before Fitzgerald and another man hooked 12 trout and landed half of them in this very same area. Their catch included one rainbow 23 inches long, and another 20 inches long.

After we had trolled for nearly an hour, Fitzgerald changed to a smaller red and white deep-running lure. Almost at once he had a strike. He worked the fish toward the boat flawlessly, and I scooped it up in the big net in the boat. The fish was a rainbow, although short of the bragging-size trout he and the other man had landed.

We roamed the lake for four or five hours more, but did not get a strike. By and by the cold forced us to take a break on an island, where we jumped up and down to restore circulation, ate some candy and drank some coffee from my thermos.

We returned to trolling in about 15 minutes. The boat was plodding along about ten yards offshore and I was dozing in the front with my hand practically frozen to the butt of my spinning rod. A heavy tug, as if the lure had slammed into a log, brought me wide awake! I automatically struck hard. The tip of the rod swooped down. Fitzgerald shut off the motor and I played the fish toward the back of the boat. I held the rod high and kept the drag on. It was a good thing. When my partner rammed the net under the fish, we saw that no hooks were into him, that only the pressure from the line was holding him. Forgetting a water safety "don't," I stood in the boat to admire the beautifully colored trout. It was a brown nearly 17 inches long and weighing about two pounds. Its spots sparkled like the splotches on a new set of watercolors.

These two trout were the crop for that day.

We arranged a trip for January 8. This time, when we put in the boat just after daybreak, we saw trout rising and the circles they left were bubbling around the cove. We headed the boat out into this lively area.

On our first run, a fish smacked my rebel lure (it has two sets of hooks, looks like a minnow and has a lip to make it run deep). Seeing me going to work, Fitzgerald complained good-naturedly: "You couldn't have one on already. I haven't even got the coughs out of the motor yet." I was too busy to utter anything except "uh, huh." The fish was jumping, and he was still 20 yards behind the boat. I played him down and guided him to the net, which John was good enough to have at the ready. I claimed a 16-inch rainbow.

Forty-five minutes later, Fitzgerald's face lit up. He clamped down on his jumping spinning rod and in a few minutes shouted for me to "get him in the net." I shaded my eyes with my hands, but couldn't see the fish. Fitzgerald cranked furiously, and a flash of white came into view. I dipped up what proved to be the prettiest trout of the day—a 17-inch brown.

These two quick catches were bound to signal a spectacular day, we thought. But this wasn't in the deck. We fished seven hours more and caught only one more trout each. Both were browns, but neither measured up to the one landed earlier by my partner. Nevertheless, his fish alone was enough to keep us lauding the merits of this winter trout fishing all the way home.

Ozzie Worley dangles three browns and a rainbow, two fish each for him and his fishing partner, that came from Philpott one day early last January.

The lake fisherman cannot keep as many trout daily as the men catching trout in the streams during the general season. In the creeks and rivers, the limit is eight; in the lakes, you must quit after five are in the creel. Even that number is not an easy one to attain in the lakes especially when the area is in the grip of a cold wave.

On January 23, Fitzgerald returned to Philpott, taking along another partner. I couldn't get away from the office. The day was a beaut. Almost spring, and I just knew what was going to happen on a honey of a warm day like this. Early that night my phone rang. It was Fitzgerald. "Got my limit today, for the first time," he chirped, "and one of them was a 19-inch rainbow."

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

OVER HALF MILLION LICENSED TO HUNT AND FISH IN VIRGINIA. Sales of basic licenses to hunt and fish in Virginia were well above the half million mark during the 1964-65 fiscal year. Licensed hunters totaled 243,526 for the year, including nonresidents and those licensed to hunt on shooting preserves only. A total of 224,454 were licensed to fish, including those who purchased nonresident season and 3-day trip licenses. In addition, 135,014 residents purchased the county or city combination hunting and fishing license.

Sales of nonresident hunting licenses brought in $341,832 in revenue during the year. Nonresident fishing license revenue totaled $34,225, plus an undetermined but obviously large portion of the $38,673 received from the sale of three-day trip licenses which are available to residents and nonresidents alike.

There were 228,684 licensed deer, bear and turkey hunters during the fiscal year. National Forest Stamp sales totaled $118,483. A total of 71,627 resident and nonresident trout licenses were sold during the period.

Revenue from the sales of all types of hunting, fishing and trapping licenses and National Forest stamps, plus annual allotments of Dingell-Johnson and Pittman-Robertson Federal Aid matching funds and a portion of the net receipts from timber sales on wildlife management areas, constitute the Commission of Game and Inland Fisheries' sole source of revenue.

1966 FISH REGULATIONS BASICALLY UNCHANGED. With the approval of only minor changes in fishing regulations for 1966 by the Commission of Game and Inland Fisheries, anglers can look forward to a slate of regulations essentially unchanged from last year. Among the changes was the opening of Pounding Mill Run in Alleghany County to fishing following a closure of several years during which it served as a public water supply.

Sunday fishing was legalized in all impounded waters in Botetourt County in addition to the James River and Carvins Cove Reservoir where it had already been permitted. The sucker dip netting season in Rockbridge County was modified to open February 15 and close May 15, to correspond with the season in surrounding counties. Traps and pots were added to the list of illegal gear which cannot be used in the Roanoke and Dan Rivers in Halifax, Charlotte, Campbell and Pittsylvania Counties and in Falling River in Campbell County to clarify the meaning of the original regulation which prohibited use of nets in these streams.

The Commission approved limiting fishing in the 60-acre trout lake and some 3½ miles of Big Brumley Creek on its Hidden Valley Wildlife Management Area to artificial lures and barbless hooks. Current plans call for opening the area to angling at noon April 2, and a special minimum size limit is contemplated.

1,500 NORTHERN PIKE STOCKED IN STATE. The Commission of Game and Inland Fisheries has completed the release of approximately 1,500 nine- to eleven-inch northern pike in selected waters around the state. The fish were reared at the Commission's King and Queen Fish Cultural Station.

About 250 of the fish were placed in the Commission's new Orange County Lake, 220 went to Commission-owned Airfield Pond in Sussex County, 200 were released in Beaver Creek Reservoir in Albemarle County, 130 were stocked in a 60-acre lake at the Naval Weapons Depot, 300 were placed in the Mattaponi River, and about 281 were were stocked in Chickahominy Reservoir.

Approximately 150 of the rapidly growing fish were retained at the King and Queen Station for brood stock. Fish biologists estimate that it will take these fish about two years to reach the legal 26" size. The Commission would like reports on any of these fish caught and released in the meantime.

A Study of Fishing Pressure on The Shenandoah

By EUGENE W. SURBER
Fish Research Biologist

THE Shenandoah is still one of the most fabulously productive sport fishing streams in the country. Its natural richness has not been degraded. It is not understocked. But at least as far as its smallmouth bass population is concerned it has been overfished, and this may be the main reason why complaints about the quality of Shenandoah River fishing have been heard even while a tremendously increased number of anglers have continued to take large numbers of fish *per mile* from its rolling waters.

A recent quantitative study of stream bottom organisms in the Shenandoah indicated a standing crop of potential fish food running up to more than a ton to the acre in the riffles (see "Fish Management Tools—Stream Bottom Sampling," *Virginia Wildlife*, February 1965). A hard water stream whose riffles sustain as much as 500 pounds of such fish food per bottom acre normally is considered a rich stream, while the riffles of soft water mountain trout streams seldom yield much over 100 pounds of bottom organisms per acre.

Fish population sampling along the Shenandoah has yielded high counts of smallmouth fingerlings, and a high ratio of young to adults, indicating excellent reproductive success in spite of a relatively low breeding population. (One large female bass can produce up to 10,000 eggs per year.) With ample stocks of fish in her waters, and an abundant food supply in her riffles, why does the Shenandoah not yield the same quality smallmouth bass fishing as that for which she was famed in years gone by? A study of angling pressure begun in 1964, continued in 1965, and to be extended at least through 1966, may provide not only the answer to that question but also some clues as to what should (and perhaps what should not) be done about the situation. Only the 1964 data is tabulated and ready for analysis at the time of this writing.

Last year, from May through October, Shenandoah River fishermen were counted from the air and from the ground in five sections of the river. These counts were made according to a statistical design[1] in which certain weekend days, including Wednesdays when many employees have half days off, and weekdays were selected at random for the counting of fishermen. A table of random numbers was used for selecting the days. The time of day for making these counts was also selected randomly after taking into consideration the length of day. Days are much longer in June than in October. Over the years, statisticians, through studies of variation between samples, have learned how relatively small samples can be used to produce accurate information. The variations among these samples are tested and the determination of the standard errors of their means and coefficients of variation provide criteria for showing the accuracy of the data as well as background information for improving the sampling design in future studies.

Creel card boxes and measuring boards were located in convenient places for fishermen reporting catches.

A ground sight station above Skyline Caverns on the South Fork.

In 1964, five airplane flights per month were made over five sections of the river considered typical of Shenandoah River fishing waters. (Because of the ease and accuracy with which fishermen could be counted from the air, including bank fishermen, flights in 1965 were doubled over 1964 and the ground counting work was abandoned. Statistical analyses showed that doubling the number of flights would

1 Furnished by Dr. Don Hayne, Institute of Statistics, North Carolina State University, Raleigh, North Carolina.

provide accuracy equal to a combined ground and aerial survey as conducted in 1964.) In flying the sections, the plane flies through the total length of the section to one side of the river at an elevation of about 600 feet above the ground so that one can peer under the bank line of trees in search of fishermen. When the lower end of the section is reached, the plane turns and goes back upstream to enable the observer to see bank fishermen on the opposite shore, or boat fishermen anchored in the shade of overhanging trees.

Ground counts of fishermen were made at stations along the river where the observer could stand on the river bank, look up and down the river as far as he could see and count fishermen fishing from the bank, from boats, or wading. The length of these sight stations was carefully measured and had beginning and end points which could be recognized from the air. In the aerial flights fishermen fishing within

The plane used in the aerial survey and its pilot, P. G. Senger.

these ground stations were counted as well as those fishing between them.

Total fishing pressure from May through October on the river sections studied in 1964 was more than 76.000 fisherman hours! Pressure on the individual sections varied from over a thousand to over seventeen hundred fisherman hours *per mile*. (See Table II.)

In studying fishing pressure in the river, relatively long stretches of the river were sampled. Twenty-two miles or 62.8 percent of the main stem of the Shenandoah in Virginia were sampled in the combined plane and ground survey.

Fishermen wading the Shenandoah below Bentonville bridge are tallied by aerial survey.

Photo by *Northern Virginia Daily*, Strasburg

Left: James W. Chiles, of Alexandria, with 5 lb. 9 oz., 22 inch smallmouth taken from the North Fork of the Shenandoah last April. Right: Joe Myers, Jr., of Front Royal with 4½ pounder caught in South Fork in October.

From Port Republic to Riverton. the South Fork of the Shenandoah River is 102 miles in length of which about 35 miles, or 34.2 per cent, were sampled for fishing pressure. With a sample of this size, we may project the fishing pressure on the smaller sections to include the entire river. (See Table III.) Result: nearly 50,000 fisherman hours on the Main Stem and 145.000 on the South Fork during a six month period in 1964!

It is important to know what kinds of fish fishermen are catching and how long it takes to catch fish. With these facts we determine how good fishing is for a given species. We have gone about this determination in two ways. A creel clerk has been employed to contact fishermen as they leave the river with, and often without, catches of fish. A card showing how many hours they fished and what species they caught. if any. is filled out by the creek clerk.

Some of these cards. to be filled out voluntarily by each fisherman. are placed in red mailboxes nailed to trees on the banks of the river. A measuring board at each box is furnished for measuring the fish caught. and yellow plastic signs requesting cooperation appear on the trees above the mailboxes located at popular fishing spots or landings. Most fishermen who are kind enough to take the time to fill out these cards. fill them out well: but there are always a few fictitious reports received that have to be discarded.

During 1964 creel clerks were employed in Sections B, D. and E to obtain catch data on completed trips. Voluntary success records were solicited from anglers fishing Sections A. B. and E. Mailboxes painted red were placed on trees at

(Continued on page 20)

Boat fishermen spotted from the plane near White Horse Rock.

Commission photo by Cutler

A LOOK AT FOREIGN GAME BIRD INTRODUCTION

By DENNIS HART

Foreign Game Bird Program Supervisor

FOREIGN game introduction is basically a program for keeping all possible hunting areas stocked with suitable game populations. Some of our native species don't fare well in the wake of modern agriculture, a high level of human disturbance the year around, and heavy hunting pressure. By contrast many Old World species have already evolved fitness for hanging on and producing a harvestable annual crop in close association with dense human population and intensive agriculture. Of course, we want to preserve and foster native species; we don't want to create any new competition for them. But we do want to fill our voids with an annual harvestable game crop.

At first glance this would seem to be simply a matter of importation and release, possibly augmented by some captivity propagation. Actually, interrelationships of native fauna, exotic game, and the climate-habitat complex must result in a highly sensitive and delicate balance if foreign game introduction is to be successful. These interrelationships are almost intangible and imperceptible.

Almost always there is need for some measure of evolutionary adjustment to the new range. Feeds are always somewhat different, and cover too; and most noticeably in our introduction endeavors there is usually a rather weighty difference in predation characteristics. Our principal introduced species, Iranian blackneck and Japanese green pheasants, are not naturally adapted to the American composite of ground predators—foxes, cats, dogs, and raccoons. A few generations are required to adapt, and this helps to account for the usual straggling and precarious establishment which is typical of foreign game introduction in America.

There are other things, too. Suitable new geographic range boundaries have to be considered. For example, in the Old World, true pheasants (*Phasianus*) are spread from Asia Minor to Japan, and by earlier ornithologists were considered to constitute several distinct species varying from *colchicus* in the Caucasus to *versicolor* in Japan. However, some of the present day ornithologists have grouped these all as one extensive species, *colchicus*, comprising principally the subspecies *colchicus, persicus, talischensis, mongolicus, torquatus, formosanus* and *versicolor*. But the final criterion of biological relationship is interbreeding fecundity through successive generations, and the principal question here concerns the relationship of Japanese green pheasants to other true pheasants. Because the Japanese Islands are cut off from the Asian mainland, we would presume that there would be a greater breeding gap between the Japanese pheasants and mainland pheasants than between any of the several kinds of true pheasants native to the Eurasian mainland, notwithstanding the thousands of miles spread between the Caucasus and the Asiatic east coast.

In order to get firsthand information on the interbreeding capabilities of the principal kinds of true pheasants in our Foreign Game Introduction Program, we cross mated the Iranian blackneck cross strain with our pure Japanese green pheasants and they demonstrated normal reproduction. However, the progeny of this cross mating, when mated among themselves, proved to be only about .015% fecund. Most of the progeny were congenitally malformed in a typically grotesque fashion. This is at least tentatively taken as indication that the Japanese green is, in fact, so distinct a species as to produce almost altogether sterile hybrids when interbred with other pheasants of the same genus. Naturally this poses somewhat of a problem in our state-wide program. We must avoid stocking Japanese green and Iranian blacknecks in the same areas, and in areas where their ranges will appreciably overlap. To do so would genetically mitigate against the establishment of any self-sustaining wild pheasant population. Accordingly we stock Japanese green on the Eastern Shore and in the Valley of Virginia.[1]

The wide disparity between our principal Japanese green stocking areas, i.e., Eastern Shore and the Great Valley, is due to our initial supposition that it was the typical *versicolor* subspecies which had been imported, whereas we now know it actually was subspecies *robustipes*. The former is from Japan's southern islands, the latter from the northern islands including some mountain valley habitat. Of course, our whole program is experimental and we will continue to give the Japanese green exclusive access to these two range extremes until some rather definite indications can be derived. Geographic distinctiveness of the two regions will minimize fringe area overlapping of Japanese green and Iranian blacknecks, and thus tend to prevent the propagation of sterile hybrids.

If the Japanese green should not fit into the Great Valley, then we can try the Korean and/or Formosan pheasants, either pure or hybrid. Apparently the Formosan, Korean, and Chinese pheasants are all genetically compatible.

Iranian blacknecks, pure and crossed with Chinese ringnecks, appear to be our best possibilities for Virginia's Tidewater and Piedmont. The Chinese ringneck is too northern a bird for acclimatization in Virginia, and the Iranian blackneck may he too southern, except for our southern counties. Our best results appear to be with pure *talischensis* blacknecks in our southern counties and with the blackneck-ringneck cross in the central and eastern counties. In any case, proven genetic compatibility insures harmonious blending of these pure and hybrid strains however much the stocking areas may overlap.

Our kalij pheasant is a pugnacious bird, and if this is a virtue he should do well. The first release, made April 17, 1963, in Giles County, was accompanied by such fighting among themselves in the "resting" pen at the site of release, following the truck trip, that between 30 and 40 were killed within a couple of hours and the idea of giving them a "rest" had to be abandoned in favor of immediate release. Since then Game Manager David White has seen them fighting among themselves, fighting grouse, and even challenging human observers. By now the whole population, intending possibly to the Northern Neck and Eastern Shore counties in the east.

Our objective, of course, is to make seed stock plantings of the most likely foreign species in all game population voids. Our general policy is to make mass stockings initially, watch for evolutionary adjustments over the precarious years, and make revivifying releases wherever particular situations seem to warrant. Success in a number of stocked areas, over roughly a ten-year period, should result in a merging of established populations and the realization of pheasant establishment on a regional hasis.

Supplementary and new program techniques involve mainly the extension of game farming practices. These include gentle release, natural and semiwild propagation, and the annual manipulation of coverts for the better accommodation of an annual harvestable game crop. Our cooperation with private game farmers is helping in this and our contact is principally through the sale of breeding stock, hatching eggs, and of surplus cocks for "put and take" use by shooting preserves, and through the provision of supplemental technical information.

Commission photo by Cutler

Iranian blackneck pheasants, both pure and crossed with Chinese ringnecks, are raised at the State Game Farm and trucked to experimental release sites in Tidewater and Piedmont Virginia. Kalij pheasants, pugnacious, grouse-like birds, seem best adapted to wooded areas on the edge of ruffed grouse range, while Japanese green pheasants go to the Eastern Shore and the Great Valley.

Commission photo by Kesteloo

Pen-raised blacknecks take off like wild birds when released. Best results appear to be with pure blacknecks in southern counties, and with blackneck-ringneck cross in central and eastern counties.

itial survivors and their progeny, have become much more wary of human and predatory involvement. They are not readily seen but good reproduction has been reported and there is some dispersal. Subsequent releases have been made at Philpott Reservoir in Henry County and in Carroll and Floyd Counties. The kalij is considered to be a promising species for voids in our typical ruffed grouse hahitat. Its stocking in Virginia will probably he confined to southwestern counties since it is not indicated as being climatically suited to other areas.

As regards potentialities for the francolin partridge, this species has been tried with seeming negative results on Hog Island and in Cumberland and Lancaster Counties. Studies by the federal Bureau of Sport Fisheries and Wildlife indicate that Virginia would cover the northern extremity of likely francolin range in America. Also it would seem that our first release sites in Virginia were slightly more wooded and less grassy than is ideal. Current indications and Virginia trials, therefore, will likely limit the francolin to the southside and Tidewater fringe of counties, starting with Halifax and Charlotte Counties on the west and ex-

The Foreign Game Program is of concern to all who are interested in the conservation of a balanced natural environment in the face of the dynamic forces which are constantly reshaping the landscape. Most notably, this includes sportsmen and game farmers. We are continually receiving inquiries for captivity stock and for releases to he made on particular areas. For the most part these can he turned into cooperative aid for the program as a whole. On our part, the enthusiasm calls for stocking and extension, technological assistance, and general cultivation of cooperative public relations.

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[1] With regard to interspecific fecundity Wayne H. Bohl, in "A Study and Review of The Japanese Green and The Korean Ring-necked Pheasants," has recorded the following observations:

"It has been observed on Honshu and Kyushu by Austin and Kuroda that the ringneck interbred freely with native wild green pheasants but the resulting F1 generation hybrids shortly disappeared. Almost none of the ringneck strain remains today in islands south of Hokkaido.

"Austin and Kuroda offer recent interbreeding considerations for the green pheasants and ring-necked pheasant group when they note: 'Yamashina (1949) considers versicolor conspecific with colchicus because he found the F1 hybrids between the two to be 'totally fertile'. While this may be true in the breeding pens and in the laboratory, it does not agree with the earlier observations of the crossing of these two forms in the wild which showed the hybrid offspring of the green pheasant-ring-necked pheasant cross to be only partially fertile."

No Sound from Ghostly Wings

By PAUL F. LONG
Alden, Kansas

S.C.S. photo
Gone almost before anyone knew it was going, the passenger pigeon's sudden disappearance was almost as unbelievable as was its former abundance.

WHERE millions had flown, darkening the sky as a cloud, now there was only emptiness; where the roosting birds were like the leaves of the trees, only the bare branches glinted in the moonlight. Man, bent on commercial exploitation and selfish, wanton destruction, had done his work well. In 1914 the last known passenger pigeon died in the Cincinnati Zoo. When, as a youngster, I read descriptions of the vast numbers of these birds which had existed a little over a hundred years previously, I could not believe they could so quickly have become extinct. In the high expectation of youth I planned to "discover" a passenger pigeon which had escaped the fate of his fellow birds. Eagerly I surveyed the many mourning doves hoping to find among them the bird I sought. As the years passed, realization came that the only passenger pigeon my generation and the following generations would ever see would be a mounted specimen in a museum.

Somewhat earlier the only parrot of eastern North America also disappeared. The Carolina parakeet, formerly found from the Gulf States to Colorado. Nebraska, and New York, vanished because of brutal and needless persecution. The last Carolina parakeet was reportedly taken in 1904.

In 1860 the flocks of another species of birds darkened the skies as they arrived in migratory flight from the South over Newfoundland, the Magdalen Islands, and the Hudson Bay. Again the wanton destruction of man created havoc among the gentle creatures of the wild, this time the Eskimo curlew. Fishermen shot them as they flew overhead. Market gunners slaughtered these tame, unsuspicious birds by the thousands. Ofttimes they could be killed with clubs as they arrived exhausted from a migratory flight, and along the route from Texas to Canada in the spring they were easy victims of the hunters' guns. Only one factor can be blamed for their near extinction—man. The curlew was believed to be gone but in 1962 two Eskimo curlews were sighted. In all probability more birds exist if two of this species have been seen, but at best these gentle shore birds are but a few scattered individuals from extinction. Few, if any of us, will ever hear the soft whistling of the Eskimo curlew or see his migratory flight through the warm spring moonlight.

Two other vanished species should be mentioned in passing, the Labrador duck and the heath hen. Few persons now living would remember the Labrador duck, a sea duck which, last recorded in 1871, has the dubious distinction of being the only duck to have become extinct. The heath hen was a grouse which lived along the Atlantic seaboard and was very abundant in the 1870's. The last known representative of the species, a lone cock, reappeared on Martha's Vineyard in 1932. Probably the fires of man cut down their numbers.

Last sighted on the Singer tract of Louisiana was another species which is nearly or possibly is extinct. This was a large crow-sized bird, the largest woodpecker of North America, the ivory billed woodpecker. Again the repetitious story—man through his ruthless destruction of the vast hardwood forests of the South, especially the river bottoms, has doomed another splendid bird. The plaintive "Kent" we will never hear nor will we see the white-lined wings spread in flight.

According to reports at least one male was heard in Louisiana during the spring of 1962 and unknown numbers are supposed to have existed in Cuba prior to the advent of mountain warfare during the Castro revolution, but no information is currently available on these.

Surely, one would believe the aesthetic loss, the irretrievable passing of things of beauty when these magnificent birds were exterminated would awaken everyone in our land to the needs of additional conservation measures; unfortunately, such is not the case. Reportedly there are 250 species of wildlife in the world on the verge of extinction and not a few of these are bird species of our own United States. Often we hear the feeling expressed that with self-government the peoples of Africa will shortly bring about the extermination of many species of wildlife. But to our shame, we of the United States who have had the advantage of self-government for nearly two centuries and have had the value of educational and conservational enlightenment seem on the point of destroying the bird symbolic of America —the bald eagle.

In the "old" United States only about 1,200 of these noble birds still soar; 2,000 pair, at least, are still to be found in Alaska, and good numbers in Canada. Part of the depletion of the bald eagle has been due to the similarity of the former and the golden eagle until the bald eagle is three years or more of age. Then it develops the plumage

which gives it the characteristic "bald" head. The passage of recent legislation to give the golden eagle protection like that afforded the bald eagle is certainly a step toward the conservation of this magnificent raptor. Not many years ago this beautiful bird could quite frequently be seen soaring high above in the summer skies throughout the Midwest. Not so today—rarely is it seen. Will the day ever come when it will again commonly be seen or is it, too, destined to vanish from "the spacious skies" of America the beautiful?

Not many decades ago one might have seen the unique mating dance of the largest crane in our land or have heard its loud deep call on a spring morning along the sandbars of the winding Arkansas or the sand islands of the Platte. Then the whooping cranes would have been a common spring or fall sight as they migrated through the central United States. The situation now in regard to this magnificent crane, its nearness to extinction, is familiar to every partially informed person in our country. Seeing a migrating bird of this species today would be a very fortunate bit of luck. To see this rare bird one would almost certainly have to go to its winter feeding ground at the Aransas Wildlife Refuge in southern Texas. Conservationists had hoped with protection and migratory surveillance the whooping crane would come back from the abyss of extinction. Is this possible or did we tarry too long before we became concerned? Seemingly the outlook is very bleak. Reports in the fall of 1962 indicated 38 birds had returned to Texas. In the fall of 1963 the reported number of birds returning to Texas was 31—including three summer fledglings. For several years the whooping crane numbers have hovered between 30 and 40. Any natural disaster or a summer without young being hatched brings the stately bird closer to extinction. Will this be another form forever gone from our skies?

The land bird giant of North America, the California condor, which once ranged all through the southwestern United States, has been forced to retreat before the encroachment of civilization to the lonely mountain areas of southern California. Here only about 40 birds still exist. Their usefulness to man, through their feeding habits as scavengers, was partly the cause for their decimated numbers. Poisoned meat scattered by stockmen for predators caused the death of many. Their scarcity is in part due to the laying of only one egg and to not laying every year. Too, the young grow very slowly, taking many months to leave the nest.

Few of us will ever have opportunity to go into the high country to see these giants of the bird world soaring on Herculean wings. Some believe that before the end of the century this endangered species will have disappeared from their mountain retreats to be added to the roll call of species which have vanished from the earth in modern times.

The case of the screech owl illustrates another danger to wildlife, the inroads made by our civilization through such factors as automobiles and urbanization.

One of the associations of the early darkness of spring evenings is the plaintive whinnying of these diminutive owls as they cry to each other. Unfortunately, throughout the eastern United States during the past few years the call of the screech owl has been heard less frequently as it has shown a decline in numbers. Just why is not fully understood, but seemingly various facets of modern civilization are involved. Automobiles account for quite a number of screech owl deaths as the owl seeks moths and other insects near the road surface.

When the sound of these little owls is heard through the summer dusk as they hunt insects, one thinks with sadness that in the span of a few years this call of the wild may be heard no more in our land.

Because of their confined breeding and feeding habits two other species are rare—the Kirkland's warbler and the Everglade kite.

Only in a restricted area 60 miles wide by 100 miles long in the jack pines of central Michigan are the young of the Kirkland's warbler brooded. Here nesting occurs only in new growth pines that have sprung up after a forest fire, and these trees must not have reached a height of over 18 feet. The 1961 count of this species would indicate about 1,000 birds are to be found today. Fortunately the Michigan state fish and game department is maintaining a specialized habitat to preserve these birds.

The Everglade kite is restricted to a specific area by its dietary habits. Known locally as the snail-hawk in the Okeechobee Swamp where all the birds of this species in North America are found, about 50 kites, it feeds upon the snail, *Pomacea caliginosa*. The rarity of this bird, brought about by ill-conceived swamp drainage projects, is traceable to man.

As we look back at the vanished species and survey those on the verge of extinction, not disease, climatic conditions, or natural calamities are responsible for the plight of our winged resources. Man—through urbanization, through selfish exploitation by lumber industries, the greed of mining interests, and through the pressure of commercial industry bringing about swamp reclamation—must largely bear the stigma of shame for this sorry conservation record. Now a new scourge of which we have only recently become aware, the rain of chemical pesticides, may cause the disappearance of many species and bring many others to the brink of oblivion. Carelessness in forest and prairie fires has also wreaked havoc on our wildlife.

Our wild creatures are a part of the rich heritage from the past left in our keeping by those who gave unstintingly of their time, resources, and, in some cases, their lives. This was done that we today might enjoy Nature's riches as they had yesterday. They planned, in their deep wisdom, that generations to come would enjoy them tomorrow. This is a time in American history when those who wish to preserve this part of America as it was and leave a part of the bounty we have enjoyed for the future must make themselves heard—heard above the clamor and pressure of selfish interests bent on personal gain and commercial exploitation. This is a time when the people of our country must be aroused from apathy through education and appraisal of conservation needs.

All of those in our land who are interested in conservation and the preservation of the beauty of America must band together to gain these objectives. Audubon Societies, Fish and Wildlife Departments, Wildlife Foundations, Scout groups, all who share this common goal must work together for fruition of this aim.

If not, the spirits of such conservationists as Muir, Pinchot, Roosevelt, Burroughs, and Audubon may rise up to ask across the years, "Why did you sleep?"

Unity of purpose is necessary or these birds will forever vanish; their beauty of form will be seen no more. Of these species that are nearing extinction we soon may say, as we have of others in the past, there is no sound from these wings.

Fishing Pressure on the Shenandoah

(Continued from page 15)

popular landings or fishing spots and report cards, pencils, and a measuring board were provided for the convenience of those anglers who wished to cooperate. The catch records for Section A in 1964 were almost entirely voluntary, while the records for B and E were in part voluntary. The roving creel clerk, who counted fishermen at the sight stations, was able to obtain some records for all sections. Sections B and C are nearly identical and catch data for B are applicable to C.

The creel clerk for Section D lived immediately above Byrd Bridge where about 70 picnic tables are available and were rented by him to fishermen and families who camped and often spent the night there, some fishing most of the night for catfish. For this reason the catch data for Section D show unusually high catches of catfish (0.672 to 1.629 catfish per hour). The high catches of catfish in D are probably characteristic of E and downstream to the State Line, for channel catfish are unusually abundant in this section of the river.

When a statistical comparison was made of voluntary and creel clerk records, no significant difference was found.

The principal species of game fish caught by fishermen are smallmouth bass, redbreast sunfish (bream) and channel catfish. Some largemouth bass, rockbass, bluegills and pumpkinseed sunfish, suckers and carp are caught, but the first three mentioned species are by far the most important.

The fishing for channel catfish in the Shenandoah was good in 1964, particularly in the main stem of the river where this species is abundant. In sections D and E it ranged from 0.207 to a maximum of 1.629 catfish per hour. A catch of close to a fish per hour is good fishing. Channel catfish fishing did not show a marked seasonal pattern, but was best in May, and it ranged from 0.672 to 0.629 catfish per hour in the vicinity of Byrd Bridge on the main stem. Catch records indicate a better catfish river than smallmouth river at this time, but the new 12-inch bass limit should change this by increasing the predator population of smallmouths.

The fishing for sunfish generally yielded an average of less than 0.2 fish per hour throughout the entire study period but fishing for this species was better in May than later in the season.

The fishing for all species of fish including suckers, carp, crappies, largemouth bass, eels, smallmouth bass and the above species often exceeds 0.6 fish per hour and occasionally exceeds 1.0 fish per hour. The fact that one is likely to catch any one of several species of fish has always made fishing the Shenandoah River interesting.

For smallmouth bass, catch rates vary from 0.062 to 0.278 per hour, or at best about four hours to catch a bass. Looking back into my personal fishing records for the Shenandoah River for September and October 1935, 43 fishing trips on 13 different dates in September and October that year yielded exactly 400 smallmouth bass, 10 inches or

TABLE I. Description of River Sections Studied

Location	*Length in Miles*
South Fork—Route 340 Bridge below Shenandoah to Route 340 Bridge above Alma.	9.0
South Fork—Riffle at Golden Rock (Compton) to Bentonville Bridge (Route 613)	10.5
South Fork—Bentonville Bridge to Riverside Bridge (Route 613 to 619)	15.3
Main Stem—Morgan Ford Bridge to Byrd Bridge (Route 624 to Route 50)	11.0
Main Stem—Byrd Bridge (Route 50) to Watermelon Park at Shepherds Ford	11.0
	Total 56.8

TABLE II. Estimated Fishing Pressure on River Sections Sampled by Plane Flights

May	June	July	August	September	October	Total	Fishermen Hours Per Mile
			SOUTH FORK				
			Section A—Above Alma (9.0 Miles)				
8,001	4,277	8,758	2,638	2,352	371	26,397	2,933
			Section B—Compton (10.5 Miles)				
6,587	6,147	6,554	5,663	4,351	189	29,491	2,809
			Section C—Bentonville Bridge (15.3 Miles)				
12,761	4,510	8,209	7,526	8,728	557	42,291	2,764
			MAIN STEM				
			Section D—Morgan Ford (11.0 Miles)				
6,272	2,623	3,808	3,078	2,119	371	18,271	1,661
			Section E—Byrd Bridge (11.0 Miles)				
10,192	2,319	3,371	4,139	2,488	742	23,251	2,114
43,813	19,876	30,700	23,044	20,038	2,230	139,701	

The above listed months comprise all but a very small part of the fishing year because in March and April the river is usually too high and muddy for fishing, and by November 7 the river water is usually too cold for artificial bait fishing.

TABLE III. Computed Total Shenandoah River Fishing Pressure

Section	Miles of River	Fishermen Hours Per Mile	Total Fishermen Hours
MAIN STEM			
Riverton to Morgan Ford	6.9	1,225	8,453
Morgan Ford to Byrd Bridge	11.0	1,225	13,475
Byrd Bridge to Watermelon Park	11.0	1,643	18,073
Watermelon Park to Va.-W. Va. Line	5.9	1,643	9,694
Totals	34.8		49,695
SOUTH FORK			
Port Republic to Hamburg-Luray	51.0	1,712	87,312
Hamburg-Luray to Riverton	51.0	1,131	57,681
Totals	102.0		144,993

West Virginia reported catches of legal (9 inches or more) smallmouth bass of 0.08 per hour for the 1948 season in a section of the South Branch of the Potomac above Romney, West Virginia. Catches of smallmouth bass were somewhat better in the lower Cacapon River, West Virginia, amounting to 0.13 bass per hour in 1948. Surber (1941), from voluntary reporting in a 3.8 mile section of the Shenandoah River above Castlemans Ferry, observed a catch rate of 0.29 smallmouth bass per hour in 1936.

Virginia now has a 12-inch limit for smallmouth bass caught in the Shenandoah River. The establishment of this size limit resulted in part from a study of fishing in experimental ponds at Waterlick where it was found that ponds with a 14-inch limit on bass produced nearly double the pounds of bass caught by the fishermen in the no-limit ponds and larger bluegills (7 inches and more in length), although the total weight of bluegills caught remained about the same as in the no-limit ponds.

TABLE IV. Size of Smallmouth Bass Caught in the Shenandoah River in 1964

River Section	Size Classes (Percent)									
	6" and Under	7"	8"	9"	10"	11"	12"	13"	14"	15" and Over
SOUTH FORK										
Above Alma	9.3	3.7	6.9	14.4	32.4	8.1	14.4	4.3	4.3	2.6
Compton to Riverside Bridge	6.4	10.4	12.6	7.5	13.1	11.5	11.2	8.2	9.6	9.4
MAIN STEM										
Morgan Ford to Byrd Bridge	1.6	2.9	13.6	9.5	25.8	17.0	5.8	12.1	9.2	2.4
Byrd Bridge to Watermelon Park	7.3	8.9	11.1	11.1	25.3	14.6	10.6	4.8	4.4	1.7

more in length, in 391.4 hours of fishing for a catch rate of 1.02 smallmouth bass per hour. This fishing, however, was done by experienced fishermen at a time when fishing was at its very best in both the South Fork and Main Stem.

A catch of 0.25 smallmouth bass per hour (4 hours to catch a bass) may be considered good, considering published data on catch records in this area. For example, Sanderson (1958), who made an extensive study of smallmouth bass creeled in the Potomac River at Lander, Maryland, showed catch rates (fish kept) ranging from 0.05 to a maximum of 0.18. In 1957 when the size limit was reduced from 10 inches to 9 inches, the catch rate nearly doubled, from 1956 rates which ranged from 0.05 to 0.07 smallmouth bass per hour, to 1957 rates which ranged from 0.11 to 0.18 bass per hour. Earlier, Surber and Seaman (1949) in

It may surprise some bass fishermen to learn that the author considers a catch rate of one smallmouth per four hours of angling to be "good" fishing. Remember, this is an overall average, covering good days and bad, experienced anglers and inexperienced, and many who weren't even fishing for bass. When only those fishermen who had creeled at least one bass were considered, *their* catch rate turned out to be nearly one smallmouth per two hours; and when only those who had landed two or more bass were considered, their rate was 2½ *smallmouths per hour,* and that *is* good fishing!—*Ed.*

Field observations of the Shenandoah River Study during 1964 indicated depleted stocks of large bass and fishermen were found keeping smallmouth bass down to six inches long. The keeping of these small bass is nothing short of sacrilege, for the smallmouth is one of the finest game fish in America. Now there is a 12-inch minimum size limit. As for those fishermen who fear that undersized bass taken on live bait will die even if released, let them try the joy of fishing with artificial lures that hook the fish in the mouth so that the hooks are easily removed. If a hook is swallowed, let the careful fisherman cut the leader and put on a new hook. The hook embedded in the released fish will disintegrate quickly under the action of the fish's powerful digestive secretions and no damage will be done. The price of a new hook is a small investment in good fishing for the future.

Let's encourage fishing for sport and not for meat. Let's keep only trophy smallmouths, and return the small ones to the water to live and grow and strike again. Muskellunge fishermen spend 75 to 150 hours on good muskie waters to catch one muskie. In the Shenandoah we have the blessing of one of the finest smallmouth bass streams in the country. It is rich in food, well stocked, and still capable of providing excellent fishing in spite of heavy pressure, if only the small fish now in the stream are given a chance to grow to respectable size.

Rabbits That Run Like Coons (Continued from page 7)

of shrubs overshadowed by cypresses, hack berries, and pin oaks. Most of the time we were either wading water or mud. By the time I took my stand on a rotting log, the beagles had jumped the rabbit and were swinging him around in a wide semicircle. Soon I was complimenting myself on picking a good place to stand. The dogs were coming straight toward me. My back was to a narrow slough which lost itself in the dense woods to my right.

I strained my eyes for a glimpse of the rabbit as I heard the beagles splashing nearer and nearer. Then they turned slightly and came to the slough in a thicket to my right. There they seemed to lose the trail. I waited a few moments, then stepped from the log. A slight splash behind me caused me to turn. I found myself facing a rabbit which had just come from the water and was shaking himself like a wet dog. I was startled, and so was he. In his takeoff he almost ran between my legs. I blasted away at him a couple of times as he scooted into the grass, but I did nothing more than mow down grass and kick up a shower of mud and water.

The beagles ran toward me and picked up the trail. The smart rabbit had given them the slip by entering the water and swimming parallel to the bank until he had come out behind me. He had escaped my notice completely until he was out of the water. By the time the dogs were in full cry again I heard Uncle Slick blast away with a single shot, but there was no letup in the crying of the beagles, so I knew he, too, had missed. The rabbit shortcircled and headed straight toward Lanny's stand. He touched off a single shot, then shouted, "I got him."

I went to him and found Uncle Slick and the beagles already there. The dogs were wet, muddy, and happy as they nosed the rabbit. Uncle Slick was leaning against a tree eyeing me as I approached. "Why didn't you get him?" he demanded. "I thought an old quail and duck hunter could surely knock over a rabbit."

"No alibi," I said. "I just plain missed him. A rabbit scooting through the grass is different from a quail or duck on wing." Then I remembered. "Why didn't you get him?" I asked.

"He fooled me," he replied. "I shot at him while he was swimming a small slough, with just his nose sticking up. When I fired he went under, so I naturally thought I had killed him. I stood my gun against a tree and started to wade in and get him. But he had only dived. He came up at the edge of the bank, and was gone before I could grab my gun and take another shot."

While we were talking, Ned had trotted away. A sudden, frantic bawling from him brought us around in a hurry. Not twenty steps from us he had jumped one of the real big old native swampers. We scurried for positions as the remainder of the pack joined Ned. But this big swamp dweller was not to be easy. For an hour he led the pack a zig-zag chase which covered the wildest part of the swamp, without even giving us a glimpse of him. Then he made a wrong turn, and Uncle Slick brought him down with a single shot.

The next two jumped rabbits were not to be ours. They did their running in the wettest part of the swamp, and finally managed to throw the industrious little beagles completely off their trails. Then Lanny downed a cottontail which jumped from a cluster of green ferns. Uncle Slick countered by sacking a big swamper which was setting a fast pace for the beagles.

When we lunched on a mossy log at one o'clock, I was still empty-handed. Uncle Slick chided me. "Lanny or I will give you a rabbit to carry home," he said. "We'd hate for folks to see you go in with nothing. It'd be a downright disgrace."

"Don't worry about me," I said. "I'll gather in some game before night."

But that seemed like an idle boast when the sun had lowered to the treetops and I still had none. The beagles were running several hundred yards away, and it seemed unlikely that they would come any nearer. My chances of downing a rabbit were becoming mighty slim.

Then a queer thing happened—one of those things which might never happen again in a lifetime of hunting. Ducks were coming into the swamp to roost. Although the duck hunting season had ended, I was thrilling to the sound of their wings and their contented chuckling as they settled in the quiet pools. A small flock of mallards came down about seventy-five yards from me. I wanted to see them after they had landed so I crawled up on a stump. A mallard hen spotted me and beat her wings upward with a wild quacking, closely followed by the remainder of the flock.

As they disappeared over the treetops I heard the sound of running feet and saw a swamp rabbit fleeing like a gray ghost from the direction of the duck pool. I could only see him occasionally as he scooted through the gathering shadows, but I tried to gauge his speed, and let drive with a load of number sixes. He tumbled head over heels, and I let out a whoop of victory. The ducks sent him to his doom. The hen's wild cry of alarm had told him of danger, but she hadn't told him which way to run.

Twilight had come by the time we had loaded the wet and weary beagles. And we were not in much better shape than the dogs. I could feel water sloshing in my boots, and we were wet and muddy to the waist. We could well have passed for coon hunters.

But it had been a good day—the kind you always remember. "I'm glad you knew the rabbits had moved to the swamp," I remarked to Uncle Slick.

He scratched his chin and grinned. "I like these rabbits that run like coons," he said. "Makes the sport more interesting. Gives old wing-shooters like you a chance to miss some four-legged targets."

A GIFT OF LIFE

Your contribution to the American Cancer Society in memory of your loved one will help support a program dedicated to the conquest of cancer. Your memorial gift will not only do honor to the dead. It could help provide a gift of life.

Memorial gift funds may be sent to your local American Cancer Society office.

AMERICAN CANCER SOCIETY

Bird of the Month:

Brown-headed Nuthatch

By DR. J. J. MURRAY
Lexington

THE three Virginia nuthatches provide a good illustration of the zonal distribution of birds, due to the effect of temperature. The red-breasted nuthatch is a cold country bird. While you might see it anywhere in the winter, in the nesting season you must go to the spruce woods of our highest mountain tops to find it. The familiar white-breasted nuthatch is a much more widely ranging species, being found all over Virginia, but more comfortable in the central part of the state. The brown-headed nuthatch is a bird of the lower areas and the more southern latitudes.

In Virginia the little brown-headed nuthatch is found in the low country: in the southern border counties from Danville east, from Richmond down both sides of the James, and on the Eastern Shore. It is only common, however, south and east of Richmond and Petersburg.

This bird likes the pine woods of the South. Although it usually nests low, it seems to prefer to feed high up in the pines. In winter they travel in little bands, possibly family bands that have kept together, keeping in touch with characteristic high-pitched notes. Like the other nuthatches it feeds mainly on the trunk and larger branches of a tree, and like them it is just as happy upside down as right side up. They feed largely on small insects in the tree bark.

The brown-headed nuthatch is a lovely little bird. It is just under five inches in length. The upperparts are bluish-gray, except for the grayish brown, almost snuff-colored back of the head. There is a very noticeable white spot on the back of the neck. Below it is dull white, with more gray on the sides.

They are early nesters, beginning in March, when a hole is excavated in a stump or fence post. Although the height of the nest varies a good deal, the hole is not usually more than a few feet from the ground. The birds seem to be very particular as to the degree of hardness they prefer in the stump, sometimes making a try at several different places before they are satisfied.

The nest is lined with grass or feathers, sometimes lightly, sometimes well lined. The five or six eggs are naturally small, almost round, about half an inch in diameter, basically white and heavily marked. The time taken to dig the hole, line it, and lay the set of eggs varies very much, from ten to twenty-five days. Milton Skinner watched a pair in eastern North Carolina at work on a nest. One bird worked at a time, making about fifty strokes per minute for some thirty minutes, and was then relieved by the mate.

The young hatch in about fourteen days. Then for some time they wander about together in a family group. The species does not migrate.

Edited by HARRY GILLAM

Virginia Wildlife Magazine Honored

Virginia Wildlife magazine was recently presented the Virginia "1965 Conservation Communications" award for outstanding efforts in this field. Shown with the mountain lion statuette is the magazine's editorial staff: (front row, left to right) Ann Pilcher, Editorial Assistant; James F. McInteer, Jr., Editor; Dorothy Allen, Education Officer and Youth Editor; (back row) Leon Kesteloo, Photographer; Jim Kerrick, Safety Officer and Boating Editor; and Harry Gillam, Information Officer, Drumming Log Editor and Circulation Manager. The award was presented by the Virginia Wildlife Federation in cooperation with the National Wildlife Federation and the Sears Roebuck Foundation.

Water Safety Conference Planned

Lane Bros. photo, Atlanta

Safety Officer James N. Kerrick of the Virginia Game Commission goes over plans for the 1966 National Water Safety Congress, to be held in Roanoke, with President Ray Turner, center, and Secretary-Treasurer Carl Bishop, right, both of Atlanta. Kerrick is Executive Vice-President of the group and is in charge of arrangements for the 1966 meeting scheduled for May 8, 9, and 10.

Taxidermist Directory

The following list of currently licensed Virginia taxidermists is supplied for the information of outdoorsmen who are interested in having some of their choice game specimens mounted this season. This in no way represents any endorsement by the Commission of Game and Inland Fisheries nor does it indicate professional competence since anyone with the required license fee may obtain a taxidermist's permit.

Johnny P. Brim, 939 Starling Avenue, Martinsville

E. C. Carter, 225 Foxland Avenue, Vinton

Joe M. Codispoti, Church Road

L. M. Fentress, 3715 Hyde Circle, Norfolk

Donald G. Jenks, 6221 Em Street, Alexandria

R. A. Snead, Harris Flippen Co., 6th and Main Streets, Richmond

Norman R. Good, Rt. 2, Hillsville

L. B. Rainey, Star Route, Emporia

C. B. Saunders, Rt. 2, Lynchburg

Jas. D. Bowers, Jr., Maurertown

Morgan M. Cuthrell, Rt. 2, Chesapeake

Ronald G. Kiser, Lynchburg

Lewis Francis Lee, The Plains

M. B. Newman, 3914 Melrose Avenue, N. W., Roanoke

Frank S. Schlueter, 3120 Parkwood Avenue, Richmond

Barney S. Anderson, Jr., Rt. 1, Box 90, Bristol

Melvin A. Mitchell, Rt. 2, Forest

O. C. Swain, 1557 Ocean Blvd., Va. Beach

Evelyn R. Bagby, 5423 Boyce Lane, Richmond

Houston Lee Biggs, Rt. 1, Box 3, Thaxton

Radford M. Jackson, Box 2, Dunn Loring

Ella E. Moseley, Box 203, Woodway

Edward L. Falls, Forest

F. Leonard Williams, 1317 Windsor Road, Suffolk

John C. Woodson, Rt. 1, Box 253, Glen Allen

Hubbard F. Walker, Jr., Rt. 1, Sandston

Wm. M. Grisso, Jr., Rt. 7, Box 87, Roanoke

Kenneth B. Hite, 2601 2nd St., Radford

Randolph Madison, Jr., 1843 Sherwood Rd., Petersburg

T. E. Altizer, Rt. 1, 153-A, Riner

Charles L. Freed, 193 Riverside Shopping Center, Waynesboro

Don A. Young, 209 Swanson Street, Galax

William R. Six, 425 E. Ridge St., Wytheville

Edited by DOROTHY ALLEN

4-H Fishing Rodeo

The farm of Mr. and Mrs. C. C. Miller was the scene of feverish activity in July when some 67 Warren County 4-H'ers, their parents and friends competed for 15 brand new one-dollar bills provided by the Lord Fairfax Soil Conservation District. A total of 156 fish were recorded as caught during the Fishing Rodeo, and 32 different fishermen made the catch. Prize winners were:

1st fish—Clay Robinson, Martha Sadlick, Mrs. R. J. Sadlick; *most fish*—Kenny Fultz, Martha Sadlick, Mrs. R. J. Sadlick; *largest fish*—Wanda Hawkins, Raymond Sargent, Mrs. R. J. Sadlick; *smallest fish*—Kenny Fultz, Linda Hawkins, Mrs. R. J. Sadlick; *last fish*—James Sargent, Linda Hawkins, Mrs. R. J. Sadlick.

During the soft-drink break, James W. Simpson, Warren County Game Warden, gave a brief demonstration on fishing safety. Then Work Unit Conservationist John Crist, and Technician Walter Marlow, of the SCS, demonstrated their technique for evaluation of the fish population in a pond and gave some helpful ideas on how to manage a farm pond for the best fishing.

The program ended with a dutch picnic lunch.

Food for Wildlife

This five-acre lot of pearl millet, Sudan sorghum and milo raised by Robert E. Burton on Swift Creek in Chesterfield County will be left as winter food for wildlife. Pictured, left to right: Donnie, Billy and Bobby Burton.

4-H'er Studies Cover Seeds

4-H'er Doug Taylor

Last year was my first year in 4-H club work. It was interesting and educational.

I joined the seed science project for 4-H boys from the age of 9-15. Our instructor was Mr. Carpenter of Carpenter Seed Cleaning Plant, who contributed a science kit to each boy.

Mr. Carpenter first taught us how to identify different seeds like rye, wheat, barley. We then did experiments such as growing seeds in drinking glasses, making seeds sprout on wet paper towels under cups. We learned the importance of moisture and light for growing seeds.

I like this project very much and I enjoy 4-H work.

—*Doug Taylor*
Culpeper

(Doug is the son of W. H. Taylor, District Game Biologist with the Commission of Game and Inland Fisheries.)

New Publication

A thirty-page publication, *Animal Study Activities*, is available to teachers. The booklet covers activities on amphibians, birds, insects, mammals and fish. It also includes information on how to set up exhibits and displays. Helpful reprints are listed. For your free copy write to Publications, Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond, Va. 23213.

Teacher Says Summer Course Complements Essay Contest

Gentlemen:

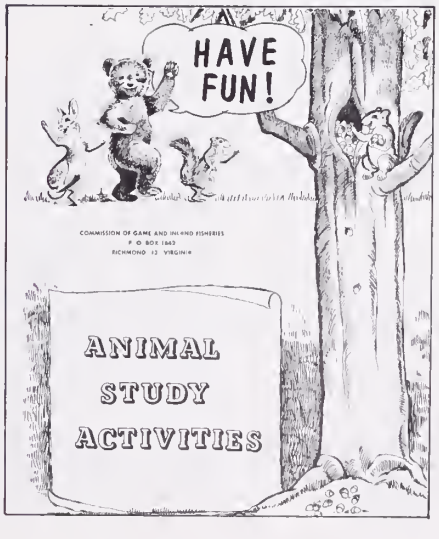
I attended the Conservation Short Course this summer and due largely to the peppy enthusiasm of that delightful girl who came to us (Madison College) from *Virginia Wildlife* magazine, I am really enthused about the essay contest and am pushing hard to get 100% participation in my school, at least, and the whole city, if possible.

I had the principal send in an entry card like the one enclosed and had hoped he'd ask for materials for each room we have participating. I have mine from summer school but we will need four additional packets if the two sections of fifth and the two sections of sixth grade are to have their own packets. Would you please send us that?

If you have any suggestions how I personally can serve you in enlisting more teacher interest, I shall be glad to help. I have talked personally to all in my school and they are going to teach conservation units and sponsor the contest. I am thrilled. I will work toward personal contact with each of the teachers in other schools.

Support your Conservation Short Course. It's the greatest.

Cordially,
Polly H. Taylor, Teacher
W. H. Keister School
Harrisonburg, Virginia



ON THE WATERFRONT

Edited by JIM KERRICK

A Boat For Christmas

Are you thinking of surprising the family by having an outboard motor and boat under the Christmas tree this year? If you are, there are a lot of points that you should consider before you make a decision.

Planning in the beginning can save you money and also pay off in more fun in the right way to get into boating.

Price alone is not the determining factor in obtaining the best outfit for your family. You should decide on a number of factors. How many persons will be using the boat? Will you use the boat on open waters, such as a big lake or ocean, or on sheltered waters, such as a river or small lake? Will you be using the boat for fishing, skiing or extended cruises? Will you moor your boat at a marina or trailer your boat to the boating areas?

When you decide what boat you want, you should then determine what type of equipment you want or should have. Let your local marine dealer help you in this selection. You certainly don't want a boat that is overpowered or one that is underpowered.

In most cases the boat builders recommend the size of the motor for each boat which will give maximum performance under normal conditions. Remember, a great many hours have been spent in making these determinations, so try and abide by them.

Much of your equipment is required by law, such as lights, sounding device, fire extinguisher and lifesaving devices. Be sure this equipment is within the limitations of the law for your class of boat.

Other equipment could be classified as accessories, such as bumpers, anchor, line, compass, depth finder, radio and first aid kit. This equipment is very useful and should be on board.

Gather all the information you can on boats and equipment. Visit several marine dealers before you make the decision.

Outboarding is fun for the whole family, as it is one of the fastest growing recreational sports that we have today.

Having the right boat and motor can make your outboarding pleasant for you and your family.

Boat Handling

You can't learn about handling boats from a book. It takes practical experience. However the change from landlubber to a seaman need not be stormy if you know a few basic principles of boat handling. You will learn from your own experience and the experience of others. Utilize the free safe boating classes offered by the U.S. Power Squadrons, Coast Guard Auxiliary and American Red Cross.

To begin with, a boat has no brakes to stop the boat's forward movement. All maneuvering is done by a steering wheel, forward and reverse control, and the throttle which controls the engine speed. As long as there is movement of your boat the rudder will control the direction your boat will take. Stopping a boat is accomplished by cutting power, or by placing the gearshift in reverse. Another point to remember is that when you turn the stern of your boat in one direction (this is controlled by the rudder) the bow of your boat goes in the opposite direction.

What takes place when you turn your steering wheel to the port in an attempt to direct your boat to port, is that the motor is swung to the port and force of the propeller steam pushes the stern to the starboard causing the boat to turn. In reality, the bow of your boat acts as a pivot and the stern does the turning.

When you are in crowded waters or coming into a mooring area, proceed with caution. SLOW DOWN. Remember, when you are mooring always keep the bow of your boat headed into the wind so you will have complete control over your boat even in a strong wind. If you have a small boat, be sure that the occupants remain seated when docking or mooring. At slow speeds a boat's direction can be changed if the occupants attempt to sit on one side of the boat or the other. In large boats weight changes seldom have any bearing on steering.

When you are loading your boat, be sure that all the equipment is distributed evenly and is readily accessible. Don't jump into a boat. Exercise caution at all times. Water has a tendency to play tricks on you, so be careful. Be sure that, when loaded, your boat does not sink below the water line or freeboard. Maintain plenty of freeboard.

Boating is a relatively safe sport, but with over a thousand lives lost in boating accidents in a single year, there is plenty of room for improvement. About one out of every five Americans living is, or will be, involved in boating. What are his chances of avoiding a serious boating accident, and how can the odds be improved?

Courtesy Kiekhaefer Corp.

Now is the time for boat owners to take stock of their safety equipment to ensure a safe and enjoyable boating season. Shown here are the items which the Mercury outboard people recommend for all small boats: (1) proper running lights, (2) approved life jackets for everyone aboard, or (3) buoyant seat cushions, (4) anchor and line, (5) bilge pump, (6) distress signal kit, (7) first aid kit, (8) compass, (9) air horn, (10) fire extinguisher, (11) at least 50 feet of extra line, and (12) lantern.

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